

Amendments to the Claims

1. (currently amended) A method of magnetically manipulating a cell ~~*in vivo*~~, comprising associating which comprises the association of a magnetisable particle with a cell.
2. (currently amended) The A method of claim 1, wherein magnetically manipulating a cell ~~which comprises the association of a magnetisable particle with a cell~~ characterised in that the method is a method of ~~comprises~~ agonising or antagonising ion channels within the cell.
3. (currently amended) The A method of claim 1, wherein according to claims 1 or 2 ~~characterised in that~~ the method comprises associating the magnetisable particle with an antibody, or an enzyme.
4. (currently amended) The A method of claim 1, wherein the according to claims 1 or 2 ~~characterised in that~~ particles are magnetisable particle is associated intracellularly or extracellularly.
5. (cancelled)
6. (currently amended) The A method according to claim 5 2, wherein the characterised in ~~that particles are~~ magnetisable particle is associated with ~~the an~~ N-terminal region of the ion channel.
7. (currently amended) The A method according to claim 2, wherein the 5 characterised in ~~that particles are~~ magnetisable particle is associated with ~~the a~~ COOH terminal region of the ion channel.
8. (currently amended) The A method according to claim 2 1, wherein characterised in that the method is an *in vivo* method.

9. (currently amended) ~~The A method according to claim 2 1, wherein characterised in that~~
the method is an *ex vivo* method.

10. (currently amended) ~~The A method of claim 1, wherein according to claims 1 or 2~~
~~characterised in that~~ the particle is a nanoparticle.

11. (currently amended) ~~The A method of claim 1, wherein according to claims 1 or 2~~
~~characterised in that~~ the method comprises the remote manipulation of a the cell.

12. (currently amended) ~~The A method of claim 1, wherein according to claims 1 or 2~~
~~characterised in that~~ the cell is a mammalian cell, bacterial cell, or plant cell.

13. - 14. (cancelled)

15. (currently amended) ~~The A method according to claim 11, wherein characterised in that~~
the cell is derived from connective or neuronal tissue.

16. (currently amended) ~~The A method according to claim 15, wherein characterised in that~~
the cell is derived from bone, neurons, cardiac cells or any combination thereof.

17. (currently amended) ~~The A method according to claim 2, wherein characterised in that~~
the ion channel is a mechanosensitive ion channel.

18. (currently amended) ~~The A method according to claim 17, wherein characterised in that~~
the mechanosensitive ion channel has been transfected into a cell.

19. (currently amended) ~~The A method of claim 17, wherein according to claims 17 or 18~~
~~characterised in that~~ the ion channel is a voltage-gated ion channel or a ligand-gated ion channel.

20. (cancelled)

21. (currently amended) ~~The A method of according to claim 2, wherein characterised in that~~ the ion channel is ~~selected from the group a including a~~ sodium channel, a potassium channel, a calcium channel, ~~a~~ chloride channel ~~and~~ a non-selective cation channel, or any combination thereof.

22. – 23. (cancelled)

24. (currently amended) ~~The A method according to claim 21, wherein 23 characterised in that~~ the potassium channel is a TREK-1 channel.

25. (currently amended) ~~The A method of claim 17, wherein the manipulating a mechanosensitive ion channel characterised in that the method comprises the association of a magnetisable particle~~ is associated with an ion channel.

26. (currently amended) ~~The A method according to claim 1, 2 or 25 characterised in that wherein~~ the magnetisable material ~~is selected from the group which~~ includes elemental iron (Fe), or a compound thereof, ~~and or~~ a chromium compound, or a combination thereof.

27. (currently amended) ~~The A method according to claim 26, wherein characterised in that~~ the iron compound is an iron salt.

28. (currently amended) ~~The A method according to claim 27, wherein characterised in that~~ the iron salt is ~~selected from the group which includes~~ magnetite (Fe_3O_4), maghemite ($\gamma\text{Fe}_2\text{O}_3$) and greigite (Fe_3S_4), or any combination thereof.

29. (currently amended) ~~The A method according to claim 26, wherein characterised in that~~ the chromium compound is a chromium salt.

30. (currently amended) The A method according to claim 29, wherein characterised in that the chromium salt is chromium oxide (CrO_2).

31. (currently amended) The A method according to claim 1, ~~2 or 25~~, wherein characterised in that the magnetisable particle ~~magnetic material~~ comprises particles ~~which comprises~~ comprising a magnetic core with a biocompatible coating.

32. (currently amended) The A method according to claim 31, wherein characterised in that the particle has a core and a silica shell enveloping the core.

33. (currently amended) The A method according to claim 32, wherein characterised in that the particle is ~~selected from those comprising~~ (a) a core comprising a magnetisable particle or and (b) a silica shell enveloping the core.

34. (currently amended) The A method according to claim 33, wherein characterised in that the magnetisable particle ~~is selected from the group, which~~ includes elemental iron (Fe), or a salt thereof and a chromium salt, or a combination thereof.

35. (currently amended) The A method according to claim 25, wherein characterised in that the magnetisable particle ~~particle~~ is a porous particle with multiple magnetic centre within the pores.

36. (currently amended) The A method according to claim 1, ~~2 or 25~~ wherein characterised in that the magnetisable particle ~~particles have~~ has a mean size of 5000 nm or less.

37. (currently amended) The A method according to claim 36, wherein characterised in that the magnetisable particle ~~particles have~~ has a mean size of from 1 nm to 5000 nm.

38. (currently amended) The A method according to claim 1, 2 or 25 wherein manipulating the cell characterised in that the method comprises the application of applying a remote magnetic field on the magnetisable particles.

39. (currently amended) The A method according to claim 1, 2 or 25 wherein characterised in that the magnetisable particle is tagged with one or more specific antibodies or protein binding motifs which recognise key a cellular elements within a the cell.

40. (currently amended) The A method according to claim 3739, wherein characterised in that the specific antibodies or protein binding motifs is a are selected from transmembrane extracellular matrix molecules, a transmembrane adhesion molecules, or a dispersed membrane adhesion proteins, or an extracellular matrix proteins.

41. – 42. (cancelled)

43. (currently amended) The A method according to claim 42 40, wherein characterised in that the transmembrane adhesion molecules are selected from is an integrins, cadherins, selectins, or and immunoglobulins.

44. (cancelled)

45. (currently amended) The A method according to claim 40[[44]], wherein characterised in that the dispersed membrane adhesion protein is RGD (arginine-glycine-aspartate).

46. (currently amended) A method of treatment of treating a patient suffering from a disorder in which involving an ion channel, plays a role which comprises the administration comprising:

administering to such a the patient of magnetisable particles, wherein the magnetisable particles associate with a cell of the patient; as hereinbefore described and

manipulating the ion channels or cells using a magnetic field external to the patient body,
thereby treating the disorder.

47. (currently amended) The A method of claim 2, wherein the method is a method of
destroying cells or inhibiting cell growth ~~which comprises agonising or antagonising ion~~
~~channels within a cell by the association of a magnetisable particle with a cell.~~

48. (currently amended) The A method of claim 2, wherein the method is a method of
inducing osmotic shock to a cell ~~which comprises agonising or antagonising ion channels within~~
~~a cell by the association of a magnetisable particle with a cell.~~

49. (currently amended) The A method of treatment or alleviation of a tumour cell which
~~comprises a method according to claim 46, wherein the cell is a tumor cell.~~

50. (currently amended) The A method according to claim 49, wherein ~~characterised in that~~
the tumour cell is a cancer cell.

51. (currently amended) The A method of treatment of a patient according to claim 47,
~~wherein characterised in that the method comprises the killing of cells~~ are destroyed or cell
growth inhibited by ~~via~~ holding ion channels open with a targeted static magnetic field.

52. (currently amended) The A method of treatment of a patient according to claim 47,
~~wherein characterised in that the method comprises the killing of cells~~ are destroyed or cell
growth inhibited by ~~via~~ cyclically opening and closing ion channels with a targeted, time-varying
magnetic field.

53. (currently amended) The A method of treatment of a patient according to claim 47,
wherein the method is a method of treating in which a disorder involving a tissue with ~~may~~
~~involve a number of tissues in the body where ion channels play a key role that participate in~~
normal cellular homeostasis.

54. (currently amended) ~~The A method according to claim 53, wherein characterised in the~~ cells are cardiac muscle cells.

55. (currently amended) ~~The A method according to claim 53, wherein characterised in that~~ the method ~~comprises the treatment of~~ disorder is hypertension.

56. (currently amended) ~~The A method according to claim 53, wherein characterised in that~~ the method ~~comprises~~ is a method of pain relief.

57. -58. (cancelled)

59. (currently amended) ~~The A method of treatment of a patient according to claim 46,~~ wherein ~~characterised in that the method~~ is a method of ~~comprises~~ tissue and/or bone repair.

60. (currently amended) ~~The A method of treatment according to claim 59, wherein~~ characterised in that the cells ~~are selected from~~ ligamentum cells, tenocytes, chondrocytes, or ~~and~~ other stromal cells ~~(such as chondrocyte progenitor cells).~~

61. (currently amended) ~~The A method of treatment according to claim 59, wherein~~ characterised in that the method comprises the regeneration of tissue or the generation of artificial tissue, ~~such as skin, cartilage, ligament, tendon, muscle or bone.~~

62. (currently amended) ~~The A method of treatment according to claim 59, wherein~~ characterised in that the method comprises ~~the~~ remote activation of ion channels.

63. (currently amended) ~~The A method of treatment according to claim 59, wherein~~ characterised in that the method comprises wound healing and/or tissue adhesion.

64. (currently amended) ~~The A method of treatment according to claim 59, wherein characterised in that~~ the method comprises bone repair and/or bone growth.

65. (canceled)

66. (currently amended) A method for establishing localised anaesthesia in a patient, comprising:

administering to the patient magnetisable particles, wherein the magnetisable particles associate with a cell of the patient; and

modulating through the action of an ion channel of the cell modulation by a magnetic field external to the patient body, thereby establishing localised anaesthesia.

67. (canceled)

68. (currently amended) ~~The A method of treatment according to claim 46, wherein characterised in that the method comprises the use of a magnetic field~~ has at a frequency of ~~from~~ 0.1 to 10 Hz.

69. (currently amended) ~~The A method of treatment according to claim 46, wherein characterised in that the method comprises the use of a~~ the magnetic field ~~will typically have~~ has a flux density of ~~from~~ 10 mT to 1400 mT.

70. (cancelled)

71. (currently amended) ~~The A method of claim 46, further comprising treatment which comprises the administration of~~ administering to the patient a therapeutically active agent ~~which may be administered~~ simultaneously, separately or sequentially with a the magnetisable particle ~~whilst agonising or antagonising ion channels within the cell.~~

72. – 151. (cancelled)

152. (original) A kit comprising a therapeutically active agent and means for associating a magnetisable particle with a cell.

153. (canceled)